

Figure 4 is an illustrative drawing of a segment of a single physical medium capable of carrying multiple information flows which in its own virtual circuit (or channel).

Figure 5 is an illustrative drawing of two virtual networks each made up of two independent segments.

Figure 6 is an illustrative drawing that provides additional details of some of the physical constituents of the virtual networks of Figure 5.

Figure 7 is an illustrative drawing which shows the logical or higher level view of the two virtual networks VN1 and VN2 of Figures 5 and 6.

Figure 8 is an illustrative drawing that shows that the Internet can provide the shared network resources of Figures 5 and 6.

Figure 9 is an illustrative drawing that shows tunneling through the Internet to provide the shared resources of Figures 5 and 6.

Figure 10 is a logical or high level view of the two virtual networks of Figure 9.

Figure 11 is a generalized illustrative drawing of the organization of node IN1 to achieve tunneling.

Figure 12 is a conceptual drawing of one possible router configuration that can be used to implement intermediate node IN1 of Figure 7.

Figure 13 is a generalized block diagram of a network device that instantiates multiple virtual network machine routers in electronic memory in accordance with one embodiment of the invention.

Figure 14 is a generalized block diagram of a network device that instantiates a virtual network machine with multiple layer 2 sub-interface data structures and multiple layer 3

interfaces and binding data structures that associate layer 2 sub-interface data structures and layer 3 interfaces;

Figure 15 is a generalized block diagram of the network device of Figure 14, except that one binding data structure has been removed and another binding data structure has been created.

Figure 16 is a generalized block diagram of a network device that implements a virtual network machine router and a virtual network machine bridge.

Figure 17 is a generalized block diagram of the network device as in Figure 16, except that one binding data structure has been removed and another binding data structure has been created.

Figure 18 is a generalized block diagram of the network device of Figure 14, except that one binding data structure has been eliminated and another binding data structure has been created.

Figure 19 is a generalized block diagram of a network device which comprises a computer which instantiates multiple virtual machines in accordance with an embodiment of the invention.

Figure 20 is a generalized block diagram of the network device of Figure 19 except that one binding data structure has been removed and another binding data structure has been created.

Figure 21 is a generalized block diagram of a subscriber management system in accordance with a presently preferred embodiment of the invention.